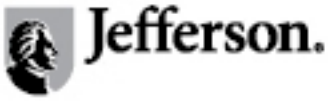


March 2009

Chapter 15- Then and Now, pp. 661-670

Jefferson Medical College

CHAPTER

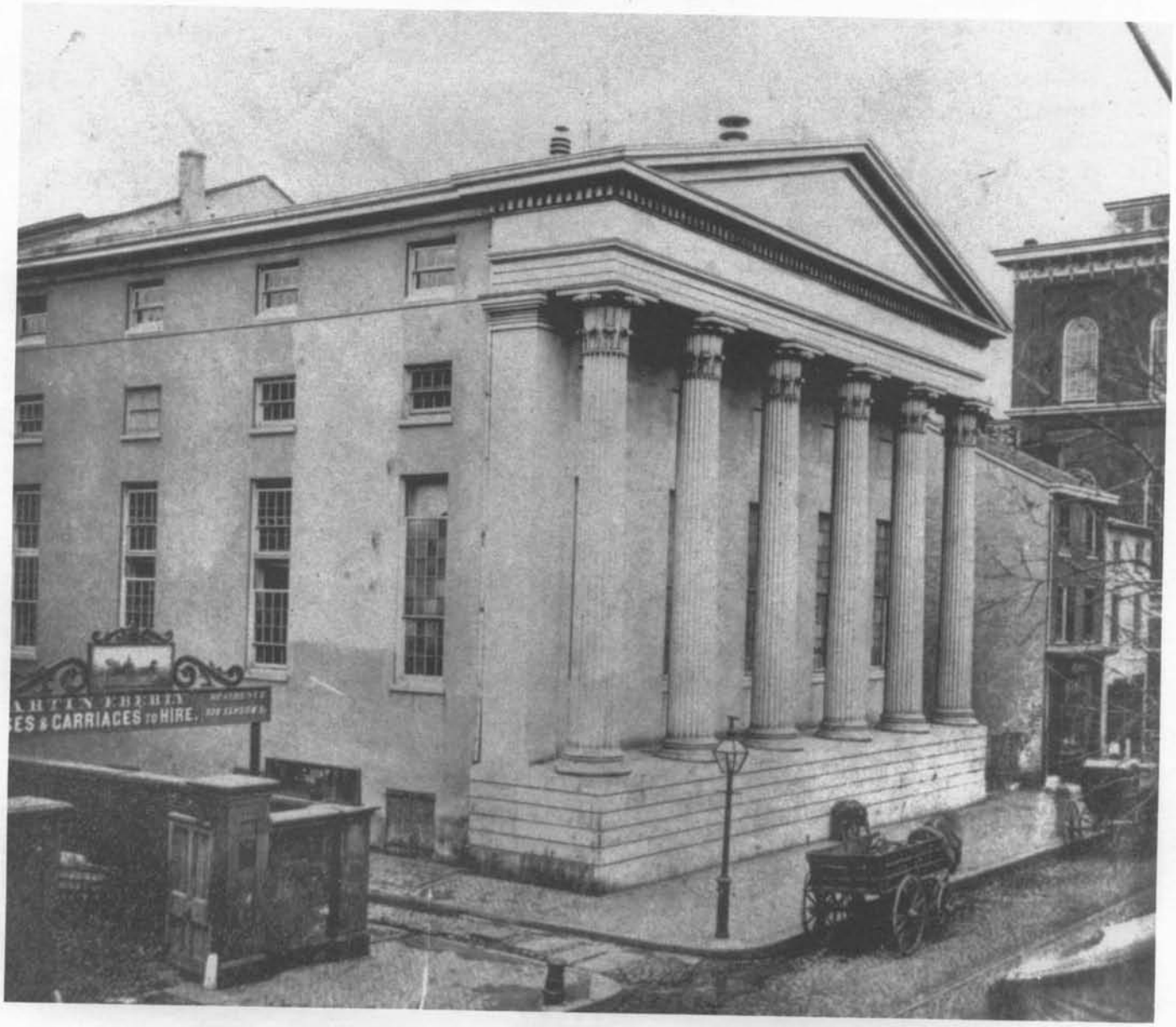
15

Then and Now

The Alumni Association's 125th Anniversary: Then And Now

When Samuel D. Gross founded the Jefferson Medical College Alumni Association in 1870, the school was forty-six years old (Fig. 1). It would be five more years until Eakins painted *The Gross Clinic* and another seven before Jefferson's first teaching hospital would be erected (Fig. 2). By 1867 Gross had been the Professor of Surgery at Jefferson for 11 years and an alumnus for 39. In October of that year, he gave the Introductory Address at the opening of the College Session entitled "Then and Now." In a most scholarly discourse which must have taken several hours to deliver (44 printed pages), he systematically covered the significant advances he had witnessed since his student days.

Fig. 1. Medical Hall (renovated with Grecian facade in 1846) at Tenth and Sansom Streets. Samuel D. Gross taught here.



His wonderment was expressed in these words:

"The advances in our knowledge in medical science within the last forty years are without parallel in any age. Never was the medical profession so busy and industrious and enthusiastic, so honest and exact in its views and its results, as it is at the present moment. It would almost seem as if the millennium were actually close at hand. Look where we may, progress, rapid and brilliant, nay, absolutely bewildering, literally stares us in the face, and challenges our respect and admiration. One is almost ready to exclaim, "Behold, all things are now!

"The age is proud of its knowledge. It boasts of it in the public prints, in the workshop, in the social circle, in the street, everywhere, in season and out of season. It has a hundred Newtons, a thousand Franklins. An age which has tamed the lightning, bridged the ocean with steamships, girdled the earth with telegraphic wires and made everything, organic and inorganic, subservient to its conveniences and enjoyment, has just cause to be proud of its achievements..."

One of the major advances experienced by Gross was the abandonment or greatly decreased use of emetics, cathartics, and venesection by use of the lancet in the prevention, treatment or alleged cure of disease. The microscope became a research tool, leading to the cell theory of Schleiden and Schwann (1839), and development of the new science of pathological anatomy. The discovery and employment of anesthesia (1846) alleviated the centuries old horror of the pain of surgery. Midwifery greatly progressed with knowledge of the mechanism of labor, the use of chloroform for anesthesia, and employment of forceps in difficult cases. Knowledge expanded in diseases of women and children. Instruments and mechanical aids such as the ophthalmoscope, laryngoscope, rhinoscope, vaginal speculum, atomizer, hypodermic syringe, thermometer and sphygmograph (forerunner of the blood pressure apparatus) made their appearance. Plastic and orthopaedic surgery began to evolve as special fields. Gross himself as "the greatest American Surgeon of his time" added 14 textbooks to the American literature.

On April 10, 1879, a dinner was held for Dr. Samuel D. Gross at the St. George Hotel, later to become the Bellevue Stratford. Gross was 74 years old and the occasion was the 51st anniversary of his entrance into medical practice. One sentence from his testimonial speech was as follows: "Oh for a glance at the profession half a century hence when man, enlightened and refined by education, shall reflect more perfectly the image of his Maker!" What if he had been given more than a century, as we most fortunately have, and what would have been his astonishment?

The story of "Then and Now" was picked up and continued by Professor William Williams Keen in his article on *Jeffersonian Recollections* in the 1925 *Clinic* yearbook. He had been a student (1860-62) of Samuel D. Gross, served as Professor of Surgery

Fig. 2. First Jefferson Hospital (1877) on Sansom Street between Tenth and Eleventh. It was replaced by Thompson Annex in 1924.

(1889-1907), and lived to be 95 years of age. The changes until 1925 could not be described better than in his own words, as follows:

"What a contrast to the present day were the conditions in October, 1860, when I heard my first lectures at the old Jefferson!

"We had only two lecture rooms and alternately rushed upstairs or downstairs to get the front seats, especially at the clinics. The same revolving table served for the cadaver at the anatomical lectures and for the patients at the surgical clinics (Fig. 3). Some of the assistants in the dissecting room, after washing their hands with only soap and water, actually assisted in the operations - - incredible conditions today. But we knew nothing of germs and infection. No, I am wrong! We were ignorant of germs, the causes of infection, but infection itself we knew only too well. Practically, *every* case became infected and when a rare case healed without suppuration, we loudly boasted of it as a triumph.

"In my Jefferson clinics I adopted the best method I know of to compel success, as follows: When we were all ready to begin the first operation, an assistant from the Pathological Laboratory tested the hands, and especially sought possible germs under the finger nails of myself and every assistant and nurse, and later ruthlessly reported whose hands were surgically clean and whose were not. This report I read to the class. I rejoice to say that I never had to eliminate either a doctor or a nurse for repeated uncleanness.

"There was only one laboratory - the dissecting room. We saw operations and chemical experiments, and *heard* the Professor describe the symptoms and physical signs of disease, but never so

Fig. 3. "Old Operating Table," the one depicted on *The Gross Clinic* painting.

much as touched one single patient, never listened to or percussed the heart, the lungs or the abdomen. No medical school in the United States then had any microscopes; now the Jefferson has 250.

"We never looked into a patient's eye, ear, nose or throat, or even felt a pulse. We had no artery forceps to catch bleeding vessels quickly, no Esmarch elastic bandage, no retractors, no hypodermic syringe, no thermometers. In a word, we had none of the modern aids to success or instruments of precision. There was no library to extend our knowledge. We had only nature's means of observation, our five senses - sight, hearing, smell, taste and touch - and in the clinics we students could only use our eyes and ears.

"As to a hospital, we had that which by courtesy we called a hospital. It consisted of two rooms - one for men and the other for women and children, with about half a dozen beds in each. All patients, after operations, unless the operation was a very serious one, were sent to their homes in carriages, where the clinical assistants attended them.

"The Sacred Seven Course of lectures all began at once, and there were only two annual courses which consisted of almost identical lectures. We were only examined at the end of the second year and only orally, not seldom by only half a dozen simple questions. Each "year" as it was called ironically, extended from October to February. Deducting liberal holidays, the lectures actually covered only a little over four months. During the first year some, like Charles Lamb, coming late made up for it by leaving early. We were handed our diplomas early in March and then let loose to learn by experience, that is to say, learning by our mistakes on our earlier patients, to do better by our later ones.

"That those of us who passed through this startling inadequate training ever amounted to anything has been due to hard work, constant reading, and intensive study by gallons of midnight oil - "astral oil" was actually then the chief means of lighting for students. You see that literally we 'hitched our wagon to a star.'

"When I entered in 1860, the Jefferson Medical College was only thirty-five years old. I have, therefore, known its development and taken some part in its growth for two-thirds of its entire life.

"McClellan, the elder Chapman (Ed. note: at U. of P.), the elder Mitchell (Weir Mitchell's father) and Mutter had passed off the stage; but we had Dunglison, the first Meigs, Pancoast, the elder, the elder Gross, and Dickson in the Faculty. The first DaCosta, the younger Gross, Brinton, Wallace, etc., were professors in the making - later, all names to conjure by.

"The classes - 730 [students] in my day - were unwieldy, and entered without any examination. The students might literally come directly from the plow, the anvil and the clerk's high stool, to the study of the difficult, "learned" profession of medicine. On graduation, the lives and health of the community were at our mercy.

"All this was sixty-four years ago. Since then, what marvelous changes have taken place!

"Our new college building, erected in 1898 (Fig. 4), is well provided with executive offices and ample lecture rooms - a fine museum - an excellent and growing library of over 9000 volumes, with a reading room and all modern library facilities.

"In the adjoining, imposing Laboratory Building (Fig. 5), erected in the same year, we have sixteen laboratories instead of the single one of my day. But the dissecting room now is a part of an entirely separate building - the Daniel Baugh Institute of Anatomy, for both instruction and research (Fig. 6).

"At Third and Pine Streets we have a separate Department for patients with diseases of the chest.

"We have also an active, separate Maternity Department, with a splendid record of life-saving of both mothers and children.

"An Accident Department, which affords relief, on an average, to one case every thirty minutes, day and night, the year through.

"A Training School for 160 nurses unsurpassed in its opportunities, and soon to have its own large building on land already owned by the Trustees.

"A Social Service Department, with a staff numbering over a dozen faithful women.

"At Ivycroft Farm, at Wayne, our convalescents

have all the advantages of country air and country surroundings, with all the care a city can supply, while regaining their normal health.

"The original hospital, on Sansom Street west of Tenth, was built in 1877. The second - the present hospital, at the corner of Tenth and Sansom Streets, was opened in 1907. The third hospital - the Samuel Gustine Thompson Annex, dedicated today, occupies the site of the first. The combined hospitals will give us the means of serving a far larger clientele of the poor, the well-to-do, and the rich. In the early hospitals, the poorest were well provided for, but the half rich and the rich had to be content with the insufficient facilities of their homes, i.e., houses built and equipped for health and not for sickness.

"How widely diffused all over the earth is the clinical training received in this hospital by our Jefferson students is shown by the fact that, when I made a tour around the world in 1901-1902, I traveled in sixteen different countries (exclusive of Europe), and in all but four, - the Straits Settlements, Java, the Caucuses and Turkestan - I found Jefferson students everywhere, and not seldom in large numbers.

"What changes a man can see in a lifetime!"

John Chalmers DaCosta, the first Samuel D. Gross Professor of Surgery (1910-31), had an intense interest in history. Many of his articles in this field were published in his *Selections From The Papers and The Speeches* (W.B. Saunders and Company, 1931, 440 pages) and *Trials and Triumphs of The Surgeon* (Dorrance and Company, 1944, 401 pages). His oration "Then and Now" (in *Papers and Speeches*, p. 179-203) was delivered in 1899 be-

Fig. 4. 1898 College Building at corner of Tenth and Walnut Streets. It was replaced by the Curtis Clinic (1931).

fore the Philadelphia County Medical Society at the celebration of the fiftieth year of its founding. It is worth reading because the changes he describes are global in scope as well as those in the City of Philadelphia, involving not only medicine, but politics, inventions, scientific tendencies, religious tenets, tastes, habits, customs, amusements, etc.

Although DaCosta was one of the surgical leaders of his time, his techniques would be considered elementary by the standards of today. Anesthesia, usually by open-drop ether, was administered by nurses, interns, or office assistants, with the surgeon responsible as "Captain of the Ship." Blood transfusions, fluids and electrolytes given intravenously, and antibiotics were a generation away. Peritonitis was the feared complication of abdominal surgery, and prohibited primary anastomosis after colon resection. Gastroenterostomy was the most complex stomach operation and DaCosta never performed a gastrectomy. The common major operations in the 1920s were mastectomy, herniorrhaphy, colostomy, hysterectomy, oophorectomy, cholecystectomy, appendectomy, and amputations.

DaCosta's fame as an author rested upon his *Modern Surgery* which went through ten editions between 1894 and 1931. In his 1898 edition, only three years after the 1895 discovery of Roentgen Rays, he pioneered in the recognition of the importance of this new field, then known as skiagraphy, by including a chapter on this subject. In it he illustrated the device of William Sweet, Professor of Ophthalmology at Jefferson, for locating foreign bodies. DaCosta, by the time of his death in 1933, had lived to see the evolution of radiology as a gigantic advance in medical diagnosis, as well as the great discoveries of bacteriology, and the use of insulin in diabetes mellitus. What he perceived as great changes between "Then" (1885) and "Now" (1933) were actually slow when compared to what was to follow in the next half century and beyond.

The author of this article served as a resident and then as an assistant in practice with Thomas A. Shallow (JMC, '11) in the years between 1942-1955. Dr. Shallow had worked with Dr. John Chalmers DaCosta and succeeded him as the second Samuel D. Gross Professor of Surgery (1939-55). Shallow was his class historian and had written on "Medical Progress" in the 1937 *Clinic*. Almost daily he would reminisce about his old professors and the changes he had witnessed at Jefferson. He had known pernicious anemia and diabetes mellitus as frequently fatal diseases in his early career and had seen their successful treatment later with liver extract and insulin respectively. He told the tragic story of his Co-Professor of Surgery (1931-36), Dr. Edward J. Klopp (JMC, '06), who had died in 1936 of streptococcus viridans endocarditis following a tooth extraction. Up to that time this septicemia was invariably fatal. It was in 1936 that sulfanilamide was first introduced into the United States. It most likely would have saved his life, had it been available for him. This was a

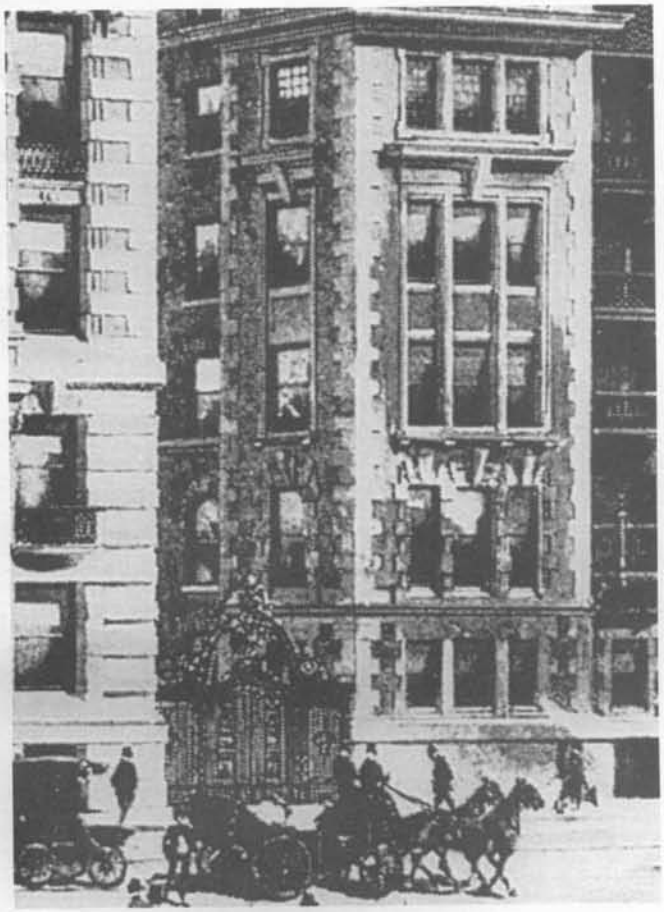


Fig. 5. Laboratory building on Tenth Street adjoining 1898 Medical College.

Fig. 6. Daniel Baugh Institute of Anatomy at Eleventh and Clinton Streets.

miracle drug that he missed by just a few months.

Shallow, by the time of his death in 1955, lived to see a galaxy of advances. To name but a few highlights, they would include the isolation and use of vitamins in nutrition, electrocardiography, antibiotics (penicillin (1941) for the treatment of many infectious diseases and streptomycin (1944) for tuberculosis, heparin for venous thrombosis, steroid drug therapy, chemotherapeutic agents, the electron microscope, the warning of lung cancer in cigarette smokers, discovery of the "double helix" configuration of DNA, Salk Polio vaccine, and the first in the world open-heart operation with use of extracorporeal circulation, performed at Jefferson by Professor John H. Gibbon, Jr. in 1953.

Mention of the name of Dr. John H. Gibbon Jr., cannot be passed by lightly because his invention of the heart-lung machine led to the evolution of modern cardiac surgery for congenital and acquired heart defects. Other Jefferson graduates and faculty members contributed significant advances and added lustre to the fame of this institution. James M. Hunter (JMC, '55) developed the first artificial tendon for use in reconstructing hands; Allan J. Erslev was the first to demonstrate the existence of a renal hormone that stimulated red blood cell production (erythropoietin); Benjamin Kendall initiated prenatal electrocardiography; Laird Jackson developed a method for first trimester diagnosis of severe congenital diseases; Robert C. Gallo (JMC '63) associated the HIV virus with the disease AIDS; Darwin J. Prockop discovered the defective gene causing aortic aneurysms and the one responsible for an unusual form of osteoarthritis; and Carlo M. Croce, who founded the Jefferson Cancer Institute, discovered the oncogene in Burkitt's lymphoma and follicular lymphoma.

The age of high technology in diagnosis and treatment is well represented at Jefferson with Dr. Barry B. Goldberg as a leader in the field of ultrasonograpy. The Bodine Center for Cancer Treatment, the Bluemle Building for Research, housing the Institute of Molecular Biology, the use of lasers, laparoscopic surgery, and computers are only some of the latest broad spectrum advances that challenge the mind and have revolutionized the teaching, clinical, and research aspects of medicine.

A notable change occurred at Jefferson in 1961, when women were first admitted as medical students. Eight women graduated in 1965, and the number has steadily increased to more than one-third in present day classes. They have excelled academically, winning many of the prizes, and are amply represented in the residency programs.

In 1969 the institution under President Peter A. Herbut became a Medical University consisting of four components, - Jefferson Medical College, The College of Graduate Studies, The College of Allied Health Sciences, and Thomas Jefferson University Hospital. The astounding and complex advances in these divisions are beyond the scope of this article, but have led some to refer to this as Jefferson's "golden age".

Samuel D. Gross may well have thought in 1867 that "it would almost seem as if the millennium were actually close at hand." We know now that at Jefferson, Gross's millennium is as far away as ever and that much more progress is to be anticipated.

The trilogy of Jefferson history books concludes with the Bluemle Life Sciences Building which symbolizes the advance into the 21st century through research in cancer and molecular biology. In spite of the recent emphasis on research, Jefferson continues its traditional mission to develop highly qualified doctors.